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Hale and Dorr LLP
60 State Street
Boston, MA 02109

EXAMINER	
CLEVELAND, MICHAEL B	
ART UNIT	PAPER NUMBER
1762	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,838

Applicant(s)

GORDON ET AL.

Examiner

Michael Cleveland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 26-35, 40-53, 58-67, and 72-78 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 26, 44, 58, and 75: The specification does not provide support for the particularly claimed sub-genus of polyamine-adducted diketones of the claimed formula where t is greater than or equal to 3, greater than 10, or 3 to about 24, particularly because there is no disclosure of compounds with t greater than 24. (Claims 36-39, 54-57, and 68-71 are not rejected because they are limited to sub-genera which are fully supported by the specification as originally filed.)

Claims 31, 51, 65: There is no disclosure of compounds in which the two A groups are different

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 44-53, 58-67, and 72-74 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 44 and 58: The clause “ x is one or two” is unclear because x is not recited in the formula. (Claims 54-57 and 68-71 are not unclear because they further limit to a clear, specific group of compounds.)

Claims 51 and 65: The phrase the “ MA_2N_x ” compound has insufficient antecedent basis because the parent claims are limited to MA_2N .

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 26-30, 32-35, 37, 40-43, and 75-78 are rejected under 35 U.S.C. 102 (a) and 102(b) as being clearly anticipated by Gordon et al., Proceeding-Electrochemical Society, 98-23, 270-279.

Claims 26-30, 32-35, 37, 40-41, 75-78: Table 2 lists Examples 1, 3, 7-9, and 35-39 of the present application.

Claims 42-43: The claimed solubilities must necessarily be features of the disclosed species or else must be caused by essential features which are not present in the claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 26-29, 32-33, 41-45, 47-49, 58-61, 63, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum et al. (U.S. Patent 5,919,522, hereafter '522). (Gordon (WO 98/46617, hereafter '617 is cited as evidence.))

Claims 26-27: '522 teaches MA_yX (col.5, lines 5-33), such as $Ba(thd)_2(PMDETA)$ and $Sr(thd)_2(PMDETA)$ (pentamethyldiethylenetriamine) (Example 3). Although '983 does not provide a specific example of a compound for which t is greater than or equal to three, nor specifically teach the use of such a compound, it does state that 2,2,7-trimethyl-3,5-octanedionate may be used as A instead of thd. Such a compound would have $t=4$. Figs. 4 to 5 and col. 12, lines 18-42 demonstrate the separation and separate evaluation of $Ba(thd)_2(PMDETA)$ and $Ba(thd)_2(tetraglyme)$, thereby suggesting that the compounds may be isolated for study. The compound is further isolated by being vaporized (col. 12, lines 18-22). '522 does not explicitly disclose compositions that are liquid at 60 and/or 20 °C, but '522, col. 8, lines 25-30 and col. 10, lines 6-9 teach that the precursor may be supplied as a liquid. Therefore, taking the reference as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a liquid of the formula MA_yX with $t=4$ as the particular precursor of '522 with a reasonable expectation of success because '522 teaches that 2,2,7-trimethyl-3,5-octanedionate may be used as A and informs the practitioner of ordinary skill in the art to expect that its precursors may be liquids.

Claims 28-29: The diketone is 2,2,7-trimethyl-3,5-octanedione (thd) (col. 6, lines 22-33). one of the beta-diketones of Applicant's Table 1, wherein R^1 and R^2 have four and five carbons, respectively, and R^3 is hydrogen (which has zero carbons).

Claims 32-33: Pmdeta fits the formula of Applicant's claim 7, wherein R^a-R^e are each methyl (i.e., alkyl) groups and $n=1$.

Claims 42-43: The claimed solubilities must necessarily be features of the disclosed species or else must be caused by essential features which are not present in the claims. Again, it appears that the properties of the disclosed compound $Ba(thd)_2(PMDETA)$ and the claimed compound $Ba(thd)_2(PEDETA)$ must be very similar. Furthermore, WO 98/46617 teaches that amine-adducted beta-diketones are very soluble (p. 5, lines 21-23; p. 8, line 20-23).

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Claims 44, 48-49, 58-61: The liquid is vaporized and the vapor is contacted with a heated substrate to deposit a metal-containing compound by MOCVD (col. 8, lines 25-45). The precursor may be used in combination with other precursors under oxidizing conditions to produce mixed metal oxides (col. 10, lines 25-50). '522 does not explicitly teach that the isolated compound is added to a solvent for use, but does disclose that the precursors may be used in solution. It has been held that changes in the order of mixing ingredients are *prima facie* obvious. See MPEP 2144.04.IV.C. and cases cited therein. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added the isolated precursor of '522 into a solvent prior to vaporizing and depositing the product with a reasonable expectation of success because changes in the order of mixing ingredients have been held to be *prima facie* obvious.

Claims 45, 74: The metals deposited may include Sr, Ba, and Ti (col. 6, lines 25-30, Example III).

10. Claims 26-29, 32-33, 41-45, 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum '522 in view of Hintermaier et al. (U.S. Patent 6,303,391, hereafter '391).

'522 states that the MOCVD precursor may be in the form of a liquid, as opposed to in the presence of a solvent (col. 8, lines 25-30), as discussed above. The liquid is vaporized and the vapor is contacted with a heated substrate to deposit a metal-containing compound by MOCVD (col. 8, lines 25-45). The precursor may be used in combination with other precursors to produce mixed metal oxides (col. 10, lines 25-50). '522 does not explicitly state that the amine-adducted beta-diketone is essentially free of other materials.

However, the selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '391 teaches that liquid precursors for MOCVD of mixed metal oxides may be provided from separate sources (i.e., in isolation from the other precursors) (col. 10, lines 3-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the precursors of '522 in isolation from one another with a reasonable expectation of

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success because '391 teaches that providing vapors of the precursors in isolation from one another is a suitable method of providing precursors in MOCVD of mixed metal oxides.

11. Claims 30, 34-40, 46, 50, 52-57, 62, 64, 66-71, and 75-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum '522, as applied to claim 26, 44, 58 above, and further in view of Sandy (U.S. Patent 4,189,306, hereafter '306).

'522 is discussed above, but does not explicitly teach 1) the use of compounds of the formula of claim 26 wherein at least one of the R substituents contains more than one carbon atom, 2) the use of thd in a compound with t greater than or equal to 3, or 3) the specific amines and complexes of Tables 2-8.

However, as discussed above, '522 teaches that the amine ligand is pmdeta wherein Applicant's R^a-R^e are each methyl (i.e., alkyl) groups and n=1. Sandy '306 teaches that methyl groups in amine adducts that enhance the solubility, stability, and volatility of metal beta-diketones (col. 4, lines 32-45) may be substituted by hydrogen or ethyl, propyl, or butyl groups (col. 4, lines 28-31; col. 2, lines 8-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have chosen each of R^a-R^e independently from the group of hydrogen, methyl, ethyl, propyl, or butyl with the expectation of similar results because '306 indicates that such ligands are equally operable as substituents on amines used to stabilize volatile metal beta-diketones. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. It has been held that compounds which are homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH₂- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). See also *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers *prima facie* obvious). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used larger groups, such as hexyl groups as the particular substituents on the polyamines of '522 and '306 with a reasonable expectation of success because there is a presumed expectation that such compounds possess similar properties.

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12. Claims 30, 34-40, 46, 50, and 52-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum '522 in view of Hintermaier '391, as applied to claim 26 and 44, above, in view of Sandy '306 for substantially the same reasons discussed above regarding claims 30, 34-40, 46, 50, and 52-57.

13. Claims 31, 51, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum '522, as applied to claim 26, 44, and 58 above, and further in view of McCormack (U.S. Patent 4,180,386, hereafter '386).

'522 is discussed above, but does not explicitly teach that the diketones may be different. '386 teaches that adducted metal diketonates with different diketone groups are known as suitable adducted metal diketonates. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a mixed diketone as the particular diketone of '522 with a reasonable expectation of success and with the expectation of similar results because '386 teaches the suitability of different diketones for forming adducted metal diketones.

14. Claims 31 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum '522 in view of Hintermaier '391, as applied to claim 26 and 44, above, in view of Sandy '306 for substantially the same reasons discussed above regarding claims 31 and 51.

15. Claims 72-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baum '522, as applied to claims 58-59, above, in view of Summerfelt (U.S. Patent 5,589,284, hereafter '284) and Tong et al. (U.S. Patent 5,464,453, hereafter '453).

'522 is discussed above. '522 teaches making a barium strontium titanate film but does not explicitly teach that the method includes a spin coating or sol-gel process to deposit a layer of metals or metal oxides.

'284 teaches depositing a ruthenium oxide film (36) and a barium strontium titanate film (42), but does not teach particular methods of forming the films. '522 and '391 teach the method of forming a barium strontium titanate film discussed above. Therefore, it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '522 and '391 as the particular method of forming the BST film of '284 with a reasonable expectation of success because '522 and '391 teaches a suitable method of forming BST films.

'453 teaches that a ruthenium oxide coating may be deposited by sol-gel, spraying or spin coating (col. 6, line 40-col. 7, line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited the ruthenium oxide film of '284 by sol-gel, spraying or spin coating with a reasonable expectation of success because '453 teaches that they are operative methods of forming ruthenium oxide coatings.

16. Claims 26-33, 41-45, 47-51, 58-61, 63-65, 72-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirlin et al. (U.S. Patent 5,280,012, hereafter '012) in view of Gordon (WO 98/46617, hereafter '617).

'012 teaches MA_yX (col.5, lines 5-33), where M may be barium, A may be diketones such as acetylacetone, and X may be amines (col. 9, lines 6-58) as MOCVD precursors. Particular precursors are isolated for study (See Table VI). '012 does not explicitly teach that the precursors are liquids. However, '617 teaches that liquid precursors offer the advantages over solids described at pp. 2-3. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the precursors of '012 in liquid form in order to have avoided the difficulties described by '617. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have chosen the species of MA_yX that are liquids at lower temperatures, such as 60° and/or 20 °C in order to have minimized the amount of energy required to liquefy the precursor.

'012 teaches diketone ligands which would result in $t=4$ (e.g., that of col. 9, line 41) and '617 teaches several ligands which would result in values of 4 or 8 (p. 8, lines 5-15).

Claims 28-30, 50, 64: '617 teaches Htod and Htnd (p. 12).

Claim 31, 51, 65: '617 teaches that the diketones may be different (p. 7, lines 21-23)

Claims 32-33: '012, Table VI teaches that the amine may fit the formula of Applicant's claim 7, where R^a-R^c are each hydrogen and $n=1$. Example 14 of '617 teaches Pmdeta, which

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fits the formula of Applicant's claim 7, wherein R^a - R^e are each methyl (i.e., alkyl) groups and $n=1$.

Claims 42-43: The claimed solubilities must necessarily be features of the disclosed species or else must be caused by essential features which are not present in the claims. Also, WO 98/46617 teaches that amine-adducted beta-diketones are very soluble (p. 5, lines 21-23; p. 8, line 20-23).

Claims 44-45, 48-49, 58-61, 74: The vapor of the substance is contacted with a heated substrate (p. 9, lines 5-16) to form barium carbonate (Example 14) or magnesium oxide (Example 11) or barium titanate (Example 17) film. '012 does not explicitly teach that the isolated compound is added to a solvent for use, but does disclose that the precursors may be used in solution. It has been held that changes in the order of mixing ingredients are *prima facie* obvious. See MPEP 2144.04.IV.C. and cases cited therein. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added the isolated precursor of '522 into a solvent prior to vaporizing and depositing the product with a reasonable expectation of success because changes in the order of mixing ingredients have been held to be *prima facie* obvious.

Claim 72-73: The material may be deposited by spin-coating or sol-gel coating (p. 6, lines 19-20).

Claims 23 and 25: The beta-diketones may be the same ('012, Table VI).

17. Claims 34-40, 46, 52-57, 62, 66-71 and 75-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirlin '012 in view of Gordon '617, above as applied to claims 26, 44, above, and further in view of Sandy '306 for substantially the same reasons discussed above regarding claims 34-40, 46, 52-57, 62, 66-71, and 75-77.

Response to Arguments

18. Applicant's arguments filed 10/20/2004 and 1/18/2005 have been fully considered but they are not persuasive.

Applicant's arguments and amendments regarding the rejections under 35 USC 112, 2nd paragraph resolve the prior rejections, but the newly presented claims are unclear for the reasons stated above.

The declaration under 37 CFR 1.132 filed 10/20/2004 is insufficient to overcome the rejection of claim 2, (7-11)/2, 13, and 16-22 based upon 35 USC 112, 1st paragraph as set forth in the last Office action because: the description of particular compounds that are liquids is not sufficient written description to indicate to the ordinary practitioner of the art that Applicant has particularly contemplated the genus of compounds which are liquids at both 60 °C and 20 °C. However, upon further review, the Examiner finds that p. 6, lines 5-6 of the specification specifically indicate that Applicant contemplated compounds which are liquids at both 60 °C and 20 °C.

Applicant's remarks and amendments and the disclosure at p. 6, lines 5-6 are sufficient to overcome the prior rejections under 35 USC 112, 1st paragraph, but the newly presented claims lack written disclosure for the reasons stated above.

Applicant's remarks regarding the priority document are noted. However, the '158 priority document does not recognize the particular subgenus of adducted diketones of the formula MA_2N_x where $x = 1$ or 2 (particularly not for $x=2$) nor MA_2N , and particularly not for the subgenus of such compounds where t is greater than or equal to 3, nor for the particularly claimed compounds of present Tables 3-8.

Applicant argues that Baum does not teach or suggest a compound that is a liquid at 60 °C and has t greater than or equal to 3. The argument is unconvincing because Baum teaches that A may be 2,2,7-trimethyl-3,5-octanedionate, which would result in a compound with $t=4$. Baum further alerts the practitioner of ordinary skill in the art to expect that the precursors may be liquids. The fact that Baum has not provided a specific example of such a liquid does not obscure its clear teachings that liquids and compounds containing 2,2,7-trimethyl-3,5-octanedionate ligands are both contemplated.

Applicant argues Gordon is not prior art because the claims are fully supported by the '158 priority document. The argument is unconvincing because the present claims are not supported by '158 priority document nor the originally filed specification of the present application.

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Applicant argues that Sandy does not teach that higher alkyl diamines would stabilize alkaline earth metals as well as the Mn, Fe, Co, and Ni compounds because alkaline earth metals have different chemistry, oxidation states, and coordination numbers than Mn, Fe, Co, and Ni. The argument is unconvincing because it is incorrect in that Mn, Fe, Co, and Ni each have oxidation states of +2, as do alkaline earth metals, and because the prior art already displays that alkaline earth metals and Mn, Fe, Co, and Ni have similar enough chemistry that they may form compounds of the formula MA_2N , where A represents diketone and N represents a polyamine. Because any alkyl group on the polyamine do not bond directly to the metal, the nature of the alkyl groups would not have been expected to have played a significant role in the stabilization of the molecules. This position is well supported by case law because it has been held that compounds which are homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by $-CH_2-$ groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). See also *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers prima facie obvious).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant's argument that Kirlin does not specifically teach liquids is unconvincing because '617 does. Applicant's arguments that '617 teaches mixtures of liquids is unconvincing because Kirlin teaches isolation of particular precursors.

Applicant argues that Kirlin and '617 do not teach or suggest a compound that has t greater than or equal to 3. The argument is unconvincing because both references teach diketones that would result in a compound with t of at least 4.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kashihara et al. (U.S. Patent 5,572,052) is cited of interest for its teachings of sol-gel deposition of BST.

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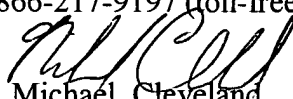
20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael Cleveland
Primary Examiner
Art Unit 1762

4/1/2005